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AUTHOR Volkwein, J. Fredericks; And Others
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ABSTRACT

This study examined the characteristics of students who default on their student loans and compared default among Whites, Asians, African Americans, Hispanics, and Native Americans. Four logistic regression models were developed using information from the National Post-Secondary Student Aid Study which contains an array of pre-college, college, and post-college information about individual recipients of federal financial aid. Application of the models indicated that loan default is significantly explained by the personal characteristics of individual borrowers, and that differences among the different racial/ethnic groups are more a matter of degree than kind. Those borrowers in similar circumstances with respect to earned degrees, marital status, and dependent children exhibited similar levels of income and loan default, regardless of race or ethnic group. Findings suggest that campuses can best assist student borrowers by creating a climate that promotes good academic performance, encourages study in both pure and applied scientific disciplines, and ensures degree completion. The results also challenge current national policy which holds campuses accountable for the default behavior of former students, since default behavior can result from factors beyond campus control, like post-college marital status and family size. Appendices present the univariate statistics for the four models. (Contains 68 references.) (Author/SW)

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CHARACTERISTICS OF STUDENT LOAN DEFAULTERS AMONG DIFFERENT RACIAL AND ETHNIC GROUPS

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J. Fredericks Volkwein
Director of Institutional Research
and Associate Professor of Educational Administration and Policy Studies
University at Albany
Albany, NY 12222
(518) 442-5413
E-Mail: JFV65@ALBANY.edu

Alberto F. Cabrera
Associate Professor of Educational Administration and Policy Studies

Bruce P. Szelest
Associate for Institutional Research

Michelle Napierski
Doctoral Student

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for Management Research, Policy Analysis, and Planning

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Jean Endo
Editor
AIR Forum Publications

Characteristics of Student Loan Defaulters within Different Racial and Ethnic Groups

ABSTRACT

This research examines the characteristics of those who default on their student loans and gives special attention to the similarities and differences among Whites, African Americans and Hispanics. Logistic regression models are developed using information from the National Post-secondary Student Aid Study (NPSAS) that contains an array of pre-college, college, and post-college information about individual recipients of federal financial aid. This is an important research and policy area because current national policy holds campuses accountable for the default behavior of former students, and campuses have virtually no information about potential differences in the dynamics of loan default among the various groups of students they serve.

Our models indicate that loan default is significantly explained by the personal characteristics of individual borowers, and that differences among Whites, African Americans, and Hispanics are more a matter of degree than kind. Those borrowers in similar circumstances with respect to earned degrees, marital status and dependent children exhibit similar levels of income and loan default, regardless of race or ethnic group. Among the many implications for policy and practice, the findings suggest that campuses can best assist their student borrowers by creating a climate that promotes good academic performance, encourages study in both pure and applied scientific disciplines, and ensures student degree completion. In addition, the results challenge the effectiveness and reasonableness of national policy that holds institutions, rather than individuals, accountable for default behavior resulting from factors that are clearly beyond campus control, like post college marital status and family size.

Introduction

For three decades, public investment in higher education has been directed at removing economic barriers to attend and to persist in college. This commitment to educational opportunity produced growth in student financial aid from $557 million in 1963-64 to an astonishing $42 billion in 1993-94 (College Board, 1994). Federal financial aid to college students has increasingly taken the form of publicly subsidized loans (Lewis, 1989). Since 1980, approximately half of all students who attend four year colleges and more than sixty percent of students at proprietary schools borrowed at one point in their education (College Board, 1992). These loans must be repaid, and there is public concern about the alarming trend in default rates. Knapp and Seaks (1992) have estimated that whereas federal loan volume grew by 58 percent during the 1980s, the dollar value of default claims grew by about 1200 percent, accounting for over a fifth of total program costs.

As seen in Chart 1, annual student loan delinquency rates, averaging between 18 and 21 percent since 1980, compare unfavorably with other types of consumer loans where the annual delinquency rates since 1980 have ranged from 1.5 percent to 3.6 percent for various types of personal consumer credit and automobile loans (American Bankers Association, 1994), and from 4.6 percent to 5.8 percent for various types of home mortgages (Mortgage Bankers Association of America, 1994).

Concomitant with the growth in student borrower default, is the commonly held perception that the institutions themselves contribute substantially to this problem. Public policy, reflected in federal legislation, holds campuses accountable for the default behavior of students, even though default occurs after students have left the institution. Despite the demise of *in loco parentis*, colleges and universities are widely believed to exert considerable influence on the personal actions of their students. However, research evidence to support this public policy is sparse.

Theoretical Framework and Model Development

This study is part of a larger project that is based upon the conceptual framework, shown in Chart 2 and discussed by Volkwein and Szelest (1995). This framework draws heavily upon the literature on economic behavior (Manski and Wise, 1983), the literature on organizations (Hall, 1991), and the college outcomes literature (Pascarella and Terenzini, 1991). Our model development and variable selection for the current study incorporate four perspectives from the research literature. The first perspective reflects theories of human capital and public subsidy; the second rests on the borrower's ability to pay; the third

Chart 1
Loan Default Averages since 1980

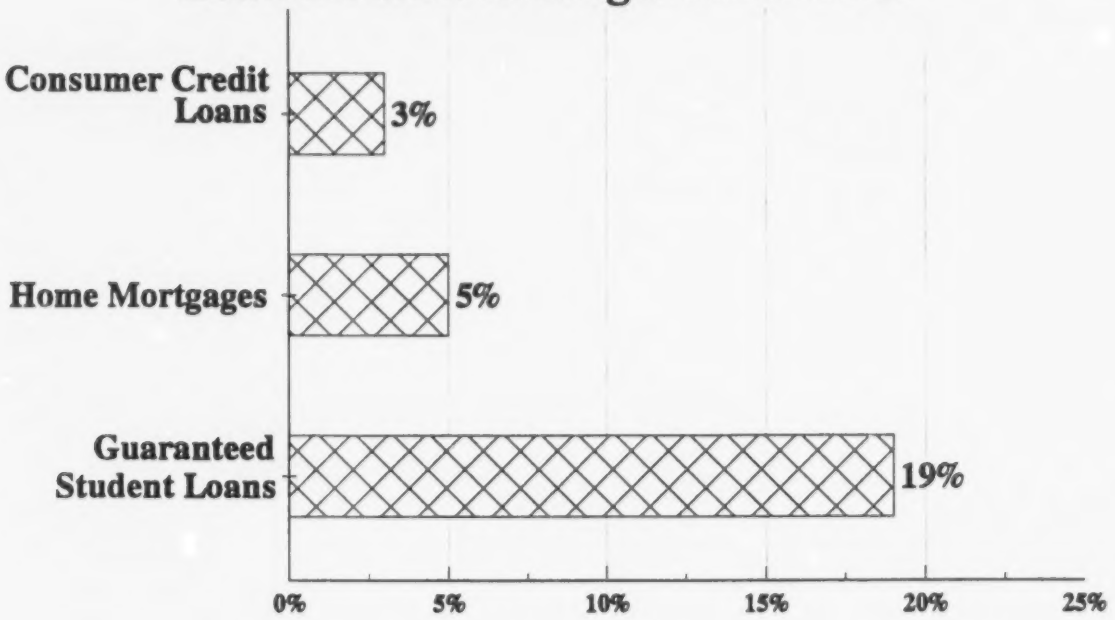


Chart 2

CONCEPTUAL FRAMEWORK

Individual/Personal

Pre-College Measures

- Age
- Gender
- Race
- Parents Education & Income
- High School Curriculum
- Achievement
- Aptitude

College Experiences

- Degree Completed
- Cohort
- Major (Biglan)
- Academic Achievement (GPA)
- Transfer Status
- Educational Goals
- Financial Support
  - Workstudy
  - Other Employment
  - Family Support

Post-College Measures

- Educational & Occupational Attainment
  - Highest Degree Earned
  - Income
  - Occupation
  - Loan Indebtedness
- Marital Status
- Number of Dependents

Institutional

Organizational Characteristics

Mission
- Institution Type
- Highest Degree Offered

Size
- Total Enrollment
- Number of Faculty
- Library Resources

Wealth
- Revenue Per Student
  - Research Grants
  - Gifts & Endowment
- Expenditure Patterns
  - Instructional
  - Academic Support
  - Student Services
  - Auxiliary Services
- Student/Faculty Ratio

Complexity/Diversity
- Percent Minority
- Percent Foreign
- Percent Commuting
- Dormitory Room & Board
- Hospital Revenue
- Urban Location

Quality/Selectivity
- Student Quality
  - Acceptance Rate
  - Percent Frosh in Top 25%
  - SAT Scores
- Faculty Quality
  - Faculty Salaries

draws upon organizational structural/functional approaches, and the fourth incorporates student-institution fit models from the literature on college outcomes.

Human capital theory encourages researchers to attend to those variables that reflect a person's willingness to invest in educational credentials and training that yield a greater return or higher financial compensation (Becker, 1964; Freeman, 1976). **The theory underlying public subsidies** is that academically able but low-income citizens are motivated to pursue post-secondary credentials and training when the benefits outweigh the costs (Cabrera, Stampen and Hansen, 1990). The benefits include enhanced skills and higher earnings potential. The costs include not only the direct costs like tuition and living expenses, but also the indirect costs of not working. While the costs of higher education must be paid in the present, the benefits can be enjoyed only in the future. Since those from low income families find it difficult to invest in these educational costs up front, public investment subsidizes these students, allowing the benefits to at least equal, if not exceed, the costs for them, as it does for youths whose parents have adequate finances.

Demonstrated financial need is the mechanism assuring that the subsidy reaches the target population (Stampen and Cabrera, 1986). Those who complete their educational programs are more likely to contribute to the nation's economic and cultural productivity and to pay back the amount of the subsidy. Those who do not complete their programs are less likely to enjoy the expected earnings enhancement, and are expected to default more frequently on their loan obligations than those who do. A human capital perspective also leads us to expect differences by major field of study and levels of degrees earned.

A second economic perspective, related to the first, is the **ability to pay model** (Cabrera, Nora and Castaneda, 1992; Cabrera, Stampen, and Hansen, 1990). This model assumes that the income levels of students and their families exert substantial influences not only on college attendance, but also on loan repayment behavior. This perspective causes us to pay research attention not only to the borrower's earnings, marital status, and family size, but also to parental income on the grounds that those who find themselves in financial difficulty may be able to rely on their parents for financial assistance.

Structural/functional perspectives from the organizational literature encourage researchers to give greater attention to those variables that reflect the influence of organizational characteristics (Hall, 1991). Studies of colleges and universities, as particular types of organizations, have shown that campus mission, size, wealth, and selectivity exert significant influences (ranging from small to large) on a variety of college outcomes including student values, aspirations, educational attainment, career development, and earnings (Pascarella and Terenzini, 1991). However, the only organizational measure we use in this particular study is institution type.

Student-institution fit models have illuminated the role of institutional and individual characteristics which can be incorporated to explain a variety of college student outcomes (Pascarella and Terenzini, 1991). Cabrera's integrated model of student retention (1992, 1993), while relying heavily upon Tinto's concepts of integration and goal commitment (1975, 1987), also gives prominence to concepts from Bean's student attrition model (1980, 1985), from the ability to pay model (Cabrera et.al., 1990), and from Nora's models that address the role of friends and parents (Nora 1987; Nora et.al., 1990). Cabrera's new model is especially valuable for increasing our understanding of the relationship among financial aid, family support, educational goals, academic integration, and academic achievement as influences on outcomes like persistence.

Several authors have demonstrated that the concepts and measures in such student-institution fit models can be applied to other college outcomes as well. Pascarella & Terenzini (1982), Terenzini, *et.al.* (1984, 1987), Volkwein, *et.al.* (1986), Volkwein (1991) are among the researchers finding a variety of cognitive and non-cognitive outcomes influenced by measures of student academic and social integration. It is reasonable at least to hypothesize that these factors also play a role in post-college behaviors, such as loan repayment and career success.

Research on Student Loan Default

Despite the importance of this national problem, the literature contains few empirical studies. We found less than ten refereed journal articles and a handful of unpublished research reports and doctoral dissertations that describe the characteristics of defaulters. In the aggregate, these sources provide valuable information about the characteristics of loan defaulters, but each of the published studies is limited to a particular state or particular type of institution, or has other data limitations. Stockham and Hesseldenz (1979) analyzed a variety of academic, demographic, and personality data collected between 1971 and 1974 from a sample of 878 borrowers at a single institution in Kentucky. Myers and Siera (1980) developed a default model on a New Mexico State University population of 107 borrowers. Gray (1985) used a population of 328 at the University of Missouri to develop a logistic regression model. Wilms, Moore, and Bolus (1987) limited their study to a population of borrowers at proprietary schools and two-year colleges in the state of California. Greene (1989) studied 161 who received Perkins Loans from a school in North Carolina. In Texas, Lein, Rickards, and Webster (1993) compared 50 defaulters with 50 repayers among former vocational and proprietary students. A study by Knapp and Seaks (1992) examined borrowers in the state of Pennsylvania at 26 public and private two and four year institutions. Mortenson (1989) examines national survey data, summarizes American attitudes toward borrowing, and

reviews the findings from several earlier studies, but does not himself present a new analysis of defaulters. More recently, Flint (1994) studied a cohort of borrowers at a multi-campus two-year institution in Illinois.

Only two studies use national databases of defaulters (Dynarski, 1991; Volkwein & Szelest, 1995). The Dynarski study employs a limited definition of default that removes over half the defaulters from the sample, and the Volkwein and Szelest study limits their analysis to pre-1984 out-of-school borrowers. Both these studies stop short of analyzing the default profiles of various populations based on racial or ethnic group.

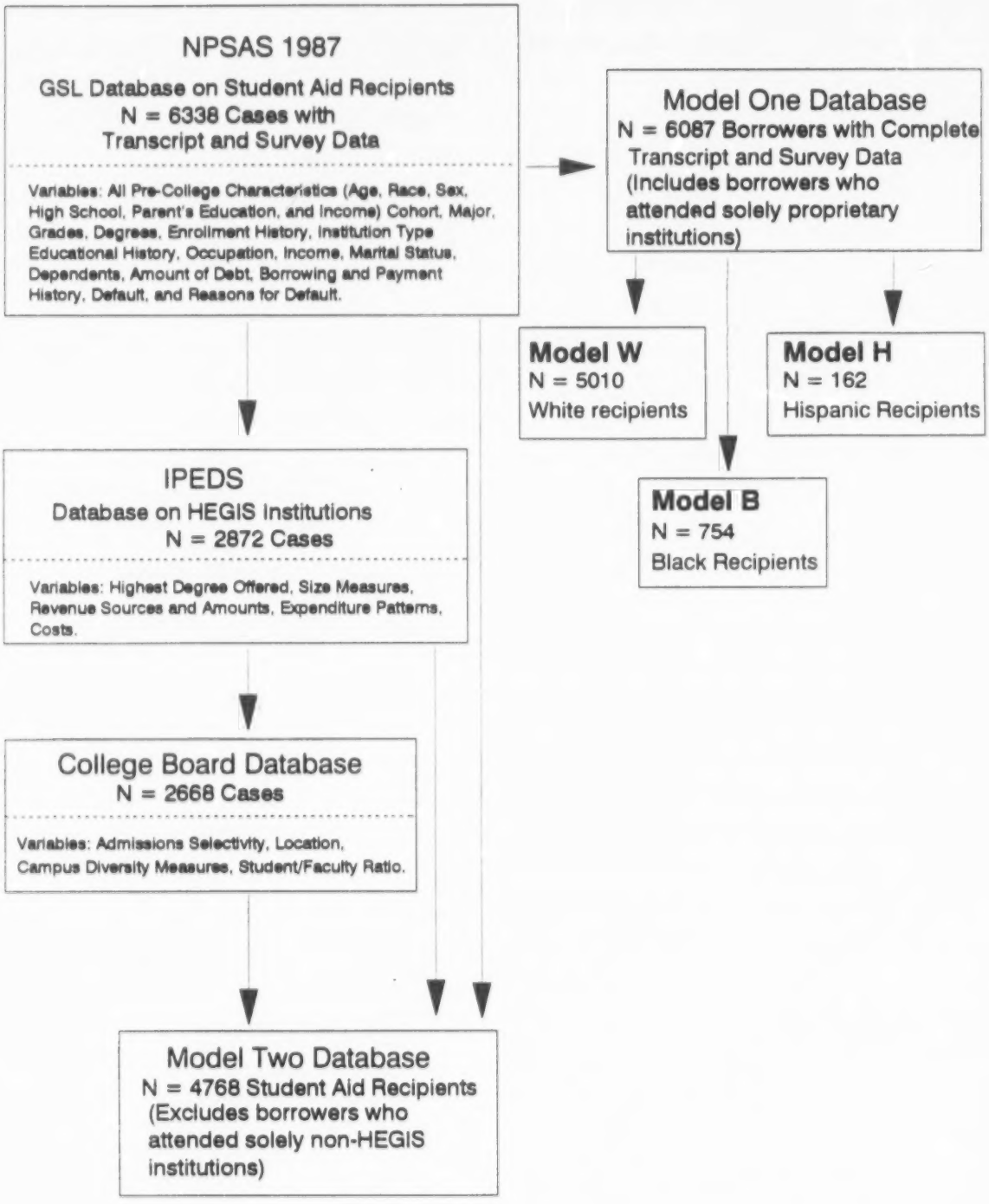
The research literature suggests the importance of examining the determinants of default behavior among ethnic groups. Astin (1982) found that minority group and socio-economic status are significantly related to various educational outcomes. In particular, he found that the lower the family income, the lower the opportunities for minority students to perform well in college and to persist. Hearn (1984, 1991) examined the college destinations of a national sample and compared the role of ascriptive factors, like race, to the role of academic factors and socioeconomic factors, like high school achievement and parental income. Olivas (1985) found that Hispanics are more reluctant to go into debt to finance their college education. Mortenson (1989) reports that Hispanics, women, and students from lower economic backgrounds are less likely to have positive attitudes towards borrowing. St. John (1989, 1991) compares the college attendance behavior of White, Black, and Hispanic students and documents the importance of loans and other financial aid promoting college attendance by minorities. Several of the loan default studies have produced results that are consistent with Astin, Hearn, Mortenson, Olivas, and St. John. Wilms, Moore and Bolus (1987) in California, Knapp and Seaks (1992) in Pennsylvania, and Flint (1994) in Illinois found race to be significantly related to differences in default rates. An early study commissioned by the U.S.Office of Education (1978) found that being Black and from a low income family are strong predictors of student loan default. More recently, the national study by Volkwein and Szelest (1995) discovered that the ethnicity of the student is one of the main predictors of default and repayment behavior. These various studies suggest the need for assessing the effects of personal, institutional, and socio-economic characteristics on default behavior among different ethnic groups.

Design of the Study and Methodology

Using the conceptual frameworks discussed above, this study examines the correlates of student loan default and repayment behavior. The research has proceeded in three phases, database building, variable reduction, and analysis.

Chart 3

Database and Model Development


NPSAS 1987
GSL Database on Student Aid Recipients
N = 6338 Cases with
Transcript and Survey Data
Variables: All Pre-College Characteristics (Age, Race, Sex, High School, Parent's Education, and Income) Cohort, Major, Grades, Degrees, Enrollment History, Institution Type Educational History, Occupation, Income, Marital Status, Dependents, Amount of Debt, Borrowing and Payment History, Default, and Reasons for Default.
Model One Database
N = 6087 Borrowers with Complete Transcript and Survey Data
(Includes borrowers who attended solely proprietary institutions)
Model W
N = 5010
White recipients
Model H
N = 162
Hispanic Recipients
Model B
N = 754
Black Recipients
IPEDS
Database on HEGIS Institutions
N = 2872 Cases
Variables: Highest Degree Offered, Size Measures, Revenue Sources and Amounts, Expenditure Patterns, Costs.
College Board Database
N = 2668 Cases
Variables: Admissions Selectivity, Location, Campus Diversity Measures, Student/Faculty Ratio.
Model Two Database
N = 4768 Student Aid Recipients
(Excludes borrowers who attended solely non-HEGIS institutions)

Database Building and Sample Population

The 1987 NPSAS database (see Chart 3) includes over 11,000 persons who began attending a higher education institution between 1973 and 1986 and who participated in the Guaranteed Student Loan (now Stafford) program. [A more complete description of the NPSAS-87 population and methodology is available in the Users Manual (NCES, 1989).] Relatively complete transcript and survey data exists in NPSAS on 6,338 individual student aid recipients. This database includes information about student personal, demographic and family characteristics, data reflecting financial and occupational information, and academic records from college transcripts. The borrowers attended over 1,400 different institutions of higher education ranging from private for-profit institutions and community colleges to professional schools and research universities. Of the 6,338 former students in our Model One dataset, 1,219 (19.24%) defaulted and 5,119 either paid in full or were in repayment with their loans in good standing. To carryout the race-specific analyses for this study, we use the Model One dataset to create separate datasets for Whites (Model W), for Blacks (Model B), and for Hispanics (Model H).

Variable Reduction

The NPSAS data supplied several hundred variables as potential correlates of loan repayment and default. In phase two of the study, we reduced the independent variables down to a manageable number. Variables are selected on the basis of having theoretical relevance, having a large number of cases, and lacking colinearity.

The univariate statistics are shown in Appendix 1, and each variable relates to at least one of the four branches of the research literature discussed above. The model incorporates measures of age, race, gender, parent's education and income, financial need (reflected in multiple aid sources), high school preparation, college major and grades, institutions attended (transfer), educational degrees completed, post-college occupational attainment and income, loan indebtedness, marital status and number of dependent children. The framework also includes measures of organizational mission--institution type and highest degree offered. This approach is consistent with the studies by Astin (1993), Hearn (1984, 1991), and others (e.g., Mow & Nettles, 1990) suggesting that student outcomes are associated with type of institution attended.

Bivariate and Multivariate Analysis

We first use cross-tabulations to describe the relationship between default behavior and key concepts in the Model. A chi-square test of significance is used for testing the relationships between the categorical variables and loan default and repayment. The statistics from the bivariate analysis helped us select the variables for the multivariate models.

The descriptive statistics and the bivariate analysis helped us make adjustments in the variables for the multivariate analysis. For example, we adjust mother's education and father's education for the large number of single parent families by taking the highest of the two, and when one is missing we use the other. Since we find few differences in public versus private institution type, we combine them and instead differentiate by highest degree offered or level of instruction (2-year vs. 4-year vs. graduate). We simplify the eight category Biglan classification of majors into a science and technology dichotomy. We also simplify marital status by combining separated, divorced, and widowed into a single category. Finally, since logistic regression requires complete data in every case, we dropped from the analysis a number of variables because of the number of missing cases (such as age and current occupation).

Since the dependent variable, loan default, is dichotomous, we examine the patterns of default behavior by a series of logistic regression models. Logistic regression is the most appropriate analytical tool for handling a dataset with a dichotomous dependent variable and a mixture of categorical and interval data among the independent variables (Feinberg, 1983). Logistic regression for this type of dataset has been shown to be superior to discriminant analysis, OLS, and HLM (Cabrera, 1994). The statistical procedures in this study are based on those described by Volkwein and Szelest (1995). Default behavior is presumed to be the product of various pre-college, college, and post-college characteristics and experiences, and the Delta-p statistic shows the impact that each variable makes on the probability of default, controlling for all other variables.

Bivariate Results for Default Behavior

Tables 1 - 3 summarize some of the results of our bivariate analysis, and display the default profiles of selected populations of borrowers. Females are significantly less likely to default than males. Other pre-college characteristics associated with low levels of loan default include being Asian American, having a college-educated parent, and coming from a family with income above $30,000. On the other hand, being African American or American Indian, coming from a family of little education, and having a GED or no high school diploma are characteristics that have default rates ranging from 33 percent to 56 percent, as shown in Table 1.

Regarding the Table 2 default rates for selected measures of the borrowers' college experience, the lowest default rates are associated with academic performance above 3.0, a major in one of the Biglan pure/hard/non-life subjects like chemistry, geology or mathematics, and attending a doctoral university or specialized institution such as a business college, engineering school, or seminary. Attending a proprietary institution or earning low grades are characteristics that have default percents in the upper 20s to mid 30s.

TABLE 1
DEFAULT RATES FOR SELECTED PRE-COLLEGE CHARACTERISTICS OF BORROWERS

Borrower Category		Default Rate
Sex	Male	20.0
	Female	18.2
Race		
	African American	55.7
	American Indian	45.7
	Asian American	16.7
	Hispanic & Other	19.1
	White	13.4
	Data Missing	6.5
Parent Income		
	$10,999 or less	23.8
	$11,000 - 16,999	22.2
	$17,000 - 22,999	20.1
	$23,000 - 29,999	14.6
	$30,000 or more	10.4
Parent Education		
	GED or No HS Diploma	33.1
	High School Graduate	22.2
	Some College	16.1
	College Graduate	14.4
	Graduate Degree	10.9
High School Graduation		
	H.S. Diploma	17.0
	GED or No H.S. Diploma	45.3

TABLE 2
DEFAULT RATES FOR SELECTED COLLEGE CHARACTERISTICS OF BORROWERS

Borrower Category		Default Rate
Institution Attended		
	Proprietary (Non-Hegis)	29.1
	2 Year	25.5
	4 Year	15.9
	Doctoral University	13.7
Cumulative GPA		
	0.0-1.9	36.8
	2.0-2.4	29.8
	2.5-2.9	13.7
	3.0-3.4	10.6
	3.5 and above	7.9
Science/Technology Major		
	Science/Technology	18.7
	Other	19.3
Transfer Status		
	U.G. Transfer Credit	13.9
	No U.G. Transfer Credit	21.3

TABLE 3
DEFAULT RATES FOR SELECTED POST-COLLEGE VARIABLES

Borrower Category	Default Rate
Highest Earned Degree	
No Degree/Certificate	32.4
Certificate/License	23.0
Associate	11.8
Bachelors	9.4
Graduate	7.3
Family Status	
Single & never married	
No dependents	16.6
With 1 dependent	42.1
With 2 or more	47.4
Married	
No dependents	6.2
With 1 dependent	13.8
With 2 or more	23.3
Separated/Divorced/Widowed	
No dependents	17.3
With 1 dependent	44.4
With 2 or more	45.6

Borrower Category	Default Rate
Loan Indebtedness (adjusted to 1973 $)	
Below $1,000	24.5
$1,000 - 1,999	17.5
$2,000 & above	11.2
1986 Earnings	
Below $5,000	24.9
$ 5,000 - 9,999	29.9
$10,000 - 14,999	24.0
$15,000 - 19,999	22.8
$20,000 - 24,999	18.1
$25,000 - 29,999	13.9
$30,000 - 34,999	12.2
$35,000 - 44,999	11.6
$45,000 or more	15.7

Those who attend more than one institution and receive transfer credit have a significantly lower default rate than those who do not.

Regarding the default rates for selected post-college variables in Table 3, the highest default rates are among those borrowers with no degree or certificate, with earnings under $10,000, and with dependent children. Having dependent children combined with being single or separated/divorced produces default rates above 40 percent. The lowest default rates occur among those with bachelors or graduate degrees, those with higher loan amounts (perhaps indicating more years of schooling and borrowing), and those with earnings above $25,000. Borrowers with a graduate degree combined with earnings above $30,000 are especially unlikely to default. These results are consistent with human capital and ability to pay theories.

We also explored the interaction between institution type and race as a factor in default. Based on the literature, we expected to find that proprietary institutions and two-year colleges would account for most of the differences in default among the racial/ethnic populations in the study. The graph in Chart 4 shows some effects, but not as universal as expected. Among Whites, Asians, and Hispanics, over two-thirds of defaulters are located at proprietary and two-year institutions. However, African and Native Americans have high default rates at four-year colleges and universities, as well as at two-year and proprietary schools. At any rate, it is evident that default rates vary significantly both by institution type and by race, thus suggesting the need for research on each.

We need to be concerned about why it is that student borrowers default at such high levels. Recognizing the limitations of self-reported information, Table 4 shows the reasons for default rated as "very important" on the NPSAS survey by the 1191 responding defaulters. The inability to pay would seem to be the most obvious explanation, and this is confirmed by the large number indicating that the most important reasons for default are being unemployed (58.9%) and working at low wages (49.1%). Interfering personal problems (32.7%) is a distant third factor. Most students realize that the loan has to be repaid (93%), so ignorance and misinformation do not seem to be significant factors in loan default. However, one out of four (24.1%) are confused by the repayment process, and almost three out of four are not aware of loan deferment options as an alternative to default.

We find significant differences in the reasons for default reported by each ethnic group. African American and Hispanic defaulters are significantly more likely to be unemployed, to be dissatisfied with their educational programs, and to have personal problems that interfere with repayment. Whites and Asians are significantly more likely to report resuming loan repayment after default.

TABLE 4

Reasons for Default Reported by each Racial/Ethnic Group

(N = 1191)

Reasons for Default Rated As "Very Important"	Total Sample	White	Asian	American Indian	Black	Hispanic	Level of Significant Diff. Among Groups
Unemployed and w/out income	58.9	52.7	33.3	54.5	70.3	70.3	***
Was working but had insufficient funds	49.1	51.7	41.7	36.4	45.7	43.2	n/s
Repaying more import loans than GSL	20.7	21.3	41.7	27.3	19.1	10.8	*
Dissatisfaction w/ Educ. Program	12.0	9.2	0	9.1	17.6	13.5	**
Had interfering personal problems	32.7	27.6	8.3	31.8	41.1	54.1	***
Confused by repayment process	24.1	23.7	33.3	27.3	24.8	21.6	n/s
Didn't realize loan had to be repaid	7.2	5.5	0	9.1	10.3	10.8	n/s
Were you aware of deferment options (% Yes)	26.4	27.0	50.0	27.3	23.8	37.8	n/s
Begun making payments since default (% Yes)	66.0	72.5	91.7	54.5	54.0	62.2	***

* Significant at .05
**Significant at .01
***Significant at .0001
n/s = Not significant

Chart 4
Student Loan Default Rates
by Racial Group and Institution Type

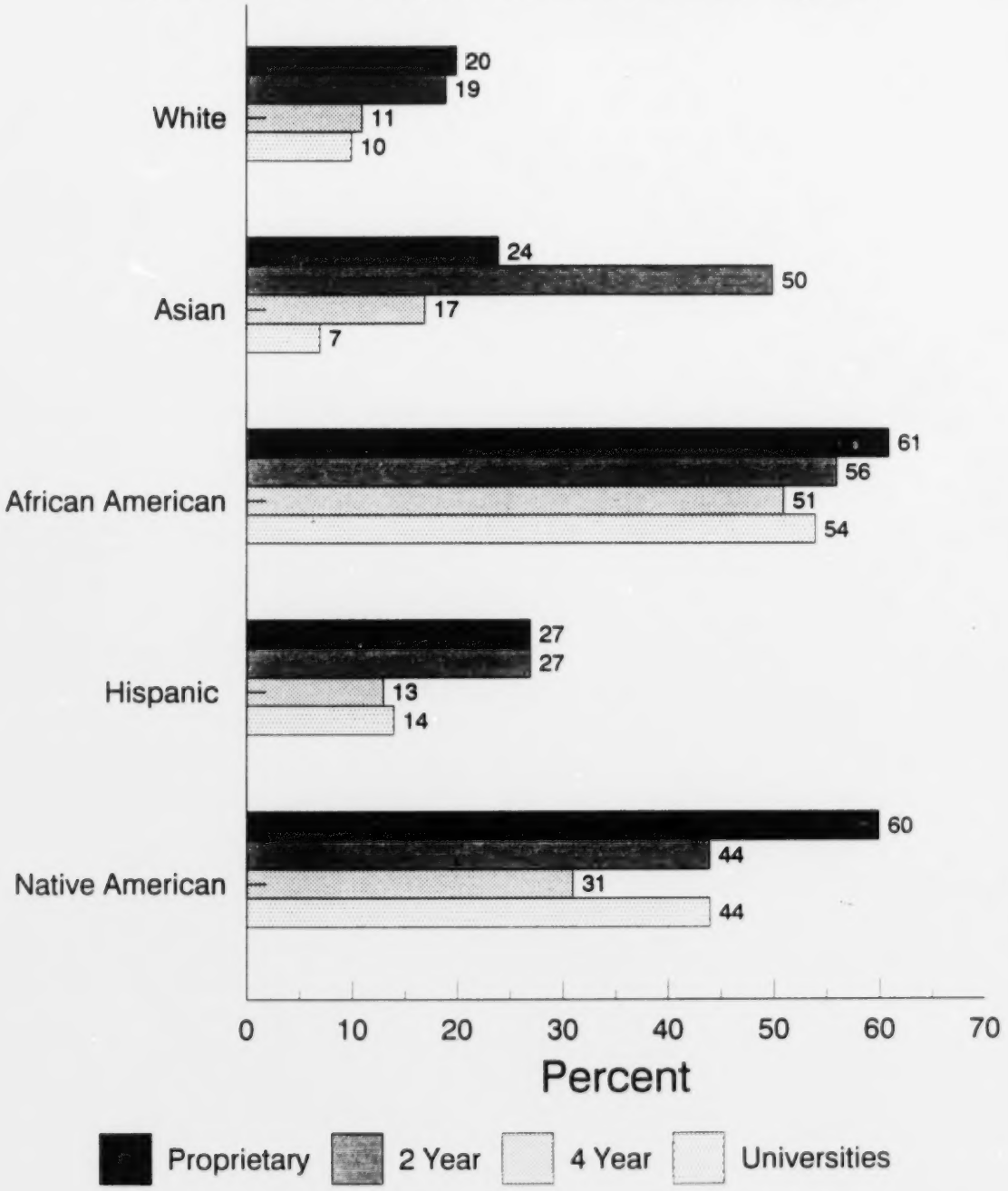
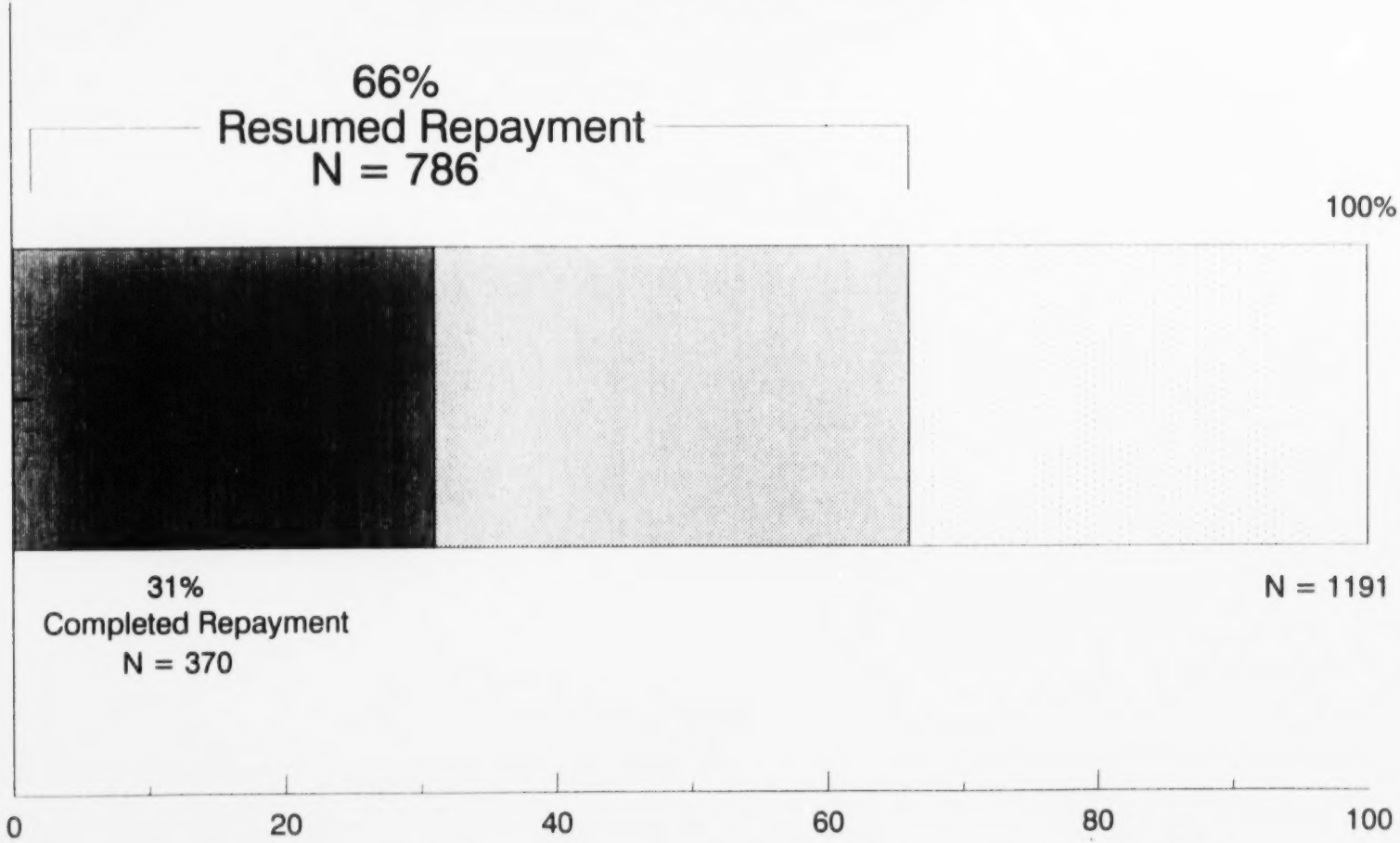


Chart 5
Proportion of Repayment by Student Loan Defaulters



With the high level of student loan default, the resumption of payments after default is an important object of study. Two out of three defaulters (66%) report making payments since the default first occurred. Chart 5 shows not only that 66 percent of defaulters have resumed payment, but that 31% have completed repayment. This may occur because the NPSAS database covers a dozen years, and many earlier defaulters had time to improve their circumstances enough to repay. Trusheim's (1994) study of self-reported financial aid found that student reports about receiving financial aid were over 90% accurate, but they were not accurate regarding the amount. We suspect the analogy for this study is that borrowers may be highly accurate about whether repayment is occuring, but they may be inaccurate reporters of the exact amount repaid.

Multivariate Results for Default Behavior

Table 5 shows the results of the logistic regression for **Model One**. The first of the data columns indicates the standardized beta-weights (representing the relative importance of each variable, controlling for all others, on the logit). The second column displays the more interpretable Delta-p values (showing the change in the probability of default that each significant variable makes, controlling for all others).

Three types of findings in Table 5 are visible. First, the beta weights and Delta-p values indicate that there are three types of variables that generate sizable increases in the probability of loan default: race, dependent children, and being separated, divorced or widowed. Second, significant decreases in default probability are produced by being female, by having parents who attended at least two years of college and who have incomes above $17,000, by earning a high school diploma, by majoring in the sciences, by attaining high college grades, by completing a college degree or professional license, and by current earnings (1986 income). Third, the effects of institution type are rather weak. Attending a four-year college versus a proprietary school lowers the default rate by 3.6 percent, but attending a two-year college or doctoral university has no significant effect, controlling for all other variables. These results are largely consist with those by Volkwein and Szelest (1995).

Table 5 does not show the Delta-p values for the other conceptually relevant variables because they are not significant and do not improve model fit. These include transfer status, various sources of non-loan financial aid, and amount borrowed.

Although consistent with the bivariate analysis, the impact on default of being American Indian or Black is distressingly large. Even controlling for all other variables in the model, the probability of default (Delta-p) by **Native Americans** is 26 percent higher than Whites and by **African Americans** is 37 percent

Table 5
Logistic Regression Results for Model One

Measures	Beta	Delta-P
Institution Type		
2-Yr College	-.151	
4-Yr College	-.252**	-.036
Doctoral Univ	-.190	
Borrower: Pre-College		
Female	-.430****	-.058
Native American	1.252****	.262
Asian American	.294	
African American	1.671****	.367
Hispanic	-.050	
Parents' Education		
High School Graduate	-.085	
Less than 2 yrs	-.579****	-.075
2 yrs College	.011	
Completed College	-.070	
Masters or Ph.D	-.308*	-.043
Parents' Income		
$11,000-$16,999	.157	
$17,000-$22,999	.151	
$23,000-$29,999	-.049	
$30,000-$49,999	-.254**	-.036
$50,000 or more	-.259	
High School Diploma	-.761****	-.092
Borrower: College		
Family Support	-.142	
Grants/Scholarhips	.034	
Work Study	-.104	
Work	-.013	
Transfer Status	-.002	
Science/Technol Major	-.216***	-.031
College GPA	-.344****	-.048
Earned Degrees		
License/Certificate	-.529****	-.069
Associates	-.855****	-.100
Bachelors	-.921****	-.106
Masters or Ph.D.	-1.220****	-.127
Amount Borrowed	-.000	
Borrower: Post-College		
Dependent Children	.246****	.041
Married	-.435****	-.059
Separated/Divorced/Wid	.486***	.087
1986 Gross Income	.000***	.000
Constant	826	
Average Default Rate		.192

[Delta-p values indicate the changes in the probability of default that each significant variable makes, controlling for all other variables in the analysis. In the case of dummy variables, Delta-p values show the change in default probability compared to the omitted population. For example, proprietary is the omitted institution type, male is omitted gender and white is the omited race.]

*Significant at .10 level
**Significant at .05 level
***Significant at .01 level
****Significant at .001 level

PCP = 83.07%
Chi Square, df = 1201.519, 35****

higher. We expected that parental education and income and high school graduation would displace the importance of race, but they do not.

Consistent with the bivariate analysis, being separated, divorced, or widowed increases the probability of default by almost 9 percent, controlling for all other variables, and having dependent children increases default probability by 4.1 percent per child. Each dollar increase in earnings reduces the probability of default by a significant but small amount.

The Delta-p values in Table 5 indicate that females are 5.8 percent less likely to default than males. Having a parent who attends college or receives a graduate degree lowers the default rate by over 7 percent and 4 percent respectively. Parental income above $30,000 lowers the default rate by 3.6 percent. Those who receive high school diplomas have a 9.2 percent lower default rate. A major in a scientific or technological field is associated with a 3.1 percent lower default rate, and each one point increase in the college GPA (e.g., from 2.0 to 3.0) is associated with 4.8 percent lower default. The data also suggest the importance of completing one's program of study, regardless of degree level. The impact of degree completion on lower default ranges from 6.9 percent for a license or certificate to 12.7 percent for a graduate degree. Being married lowers the probability of default by almost 6 percent.

Overall, **Model One** correctly predicts over 83 percent of repayment and default behavior, but this is deceptive because it correctly predicts 96 percent of repayment, but only 30 percent of default.

Multivariate Results for Whites, Blacks, and Hispanics

Because race and ethnicity exert such a strong effect on these initial findings, and on the findings in previous studies noted above, we wanted to explore the possibility of differences in the patterns of default for each racial group. Moreover, the research literature suggests the need for investigating variable default behavior among different ethnic groups. We are limited by the low number of borrowers in the dataset for Asians and Native Americans. However, as shown in Chart 3, we are able to capture enough cases to carryout separate logistic regressions for Whites (Model W), African Americans (Model B), and Hispanics (Model H), although this latter population is below the recommended standard of 10 cases per variable. Table 6 shows the results of the three separate logistic regressions.

Since **Model W** contains more than 80 percent of the cases in Model One, we expected and found similar findings to those shown in Table 5. The significant Delta-p values for Model W in Table 6 show that the effects of four-year college attendance, gender, parent education and income, a high school

Table 6
Logistic Regression Results

	Model W (Whites = 5010)		Model B (Blacks = 754)		Model H (Hispanics = 162)	
Measures	**Beta**	**Delta-P**	**Beta**	**Delta-P**	**Beta**	**Delta-P**
Institution Type						
2-Yr College	-.171		-.294		.160	
4-Yr College	-.339**	-.035	-.157		.065	
Doctoral Univ	-.293**	-.031	.029		.790	
Borrower: Pre-College						
Female	-.466****	-.046	-.518***	-.129	-1.327**	-.132
Parents' Education						
High School Graduate	-.014		-.106		-1.573*	-.144
Less than 2 yrs	-.330*	-.034	-1.175****	-.277	-.458	
2 yrs College	.231		-.494*	-.123	1.635	
Completed College	.113		-.208		.328	
Masters or Ph.D	-.186		.019		-.868	
Parents' Income						
$11,000-$16,999	.387**	.052	-.148		-9.002	
$17,000-$22,999	.133		.356		.290	
$23,000-$29,999	-.055		.007		-.691	
$30,000-$49,999	-.326**	-.034	-.003		-1.402	
$50,000 or more	-.193		-.545		.802	
High School Diploma	-.978****	-.079	-.197		-1.696**	-.150
Borrower: College						
Family Support	-.217**	-.023	.279		-1.551	
Grants/Scholarhips	.002		.224		.348	
Work Study	-.075		-.382		.338	
Work	.071		-.253		-.516	
Transfer Status	.013		-.194		-1.427	
Science/Technol Major	-.348****	-.036	.109		-.228	
College GPA	-.400****	-.040	-.114		-.861	
Earned Degrees						
License/Certificate	-.523***	-.050	-.732***	-.180	1.325	
Associates	-.994****	-.080	-.739*	-.182	-8.521	
Bachelors	-.993****	-.080	-.568**	-.141	-.749	
Masters or Ph.D.	-1.463****	-.099	.187		-8.873	
Amount Borrowed	-.000		.000		.000	
Borrower: Post-College						
Dependent Children	.281****	.036	.204**	.050	.369	
Married	-.407***	-.041	-.558**	-.139	-1.795*	-.153
Separated/Divorced/Wid	.635****	.092	.105		-.498	
1986 Gross Income	.000**	-.000	-.000		.000	
Constant	1.1436		1.4352		3.3368	
Average Default Rate		.134		.557		.191
*Significant at .10 level	PCP = 86.7%		PCP = 63.7%		PCP = 86.3%	
**Significant at .05 level	X2,df = 547.615,31****		X2,df = 75.298,31****		X2,df = 65.158,31****	
***Significant at .01 level						
****Significant at .001 level						

diploma, science major, college grades, earned degrees, dependent children, marital status, and 1986 income all effect default in the same direction and in roughly the same magnitude as in Model One. Additionally for this group, attending a doctoral university is associated with 3.1 percent lower default; parent income below $17,000 increases the default by over 5 percent; and family support while in college lowers default by 2.3 percent. Whites who complete graduate degrees have a 10% lower default rate.

The average default rate for the Model W population is 13.4 percent. Regarding the cases correctly predicted, Model W is even more bimodal than Model One. The model for Whites correctly predicts 98.6 percent of repayment but only 10.8 percent of default. (See Chart 6.)

The regression results for the **Model B** dataset are also shown in Table 6. Fewer Beta and Delta-p values are significant for the African American population (than for Whites), but the magnitudes are much greater. Black females (compared to males) have almost a 13 percent lower default rate -- three times the effect for White females. Having a parent who attended college is associated with 27.7 percent lower default for Blacks -- eight times the size of the effect on Whites, and having a parent who completed two years of college lowers default by 12.3 percent among African Americans.

For both Whites and Blacks, degree completion has a dramatic influence on lowering the rate of loan default, but the impact of each credential through bachelors degree attainment is much greater for Black borrowers. Completing a license/certificate or associate degree by Blacks lowers their default rate by about 18 percent, while completing a bachelors degree lowers the probability of default by 14.1 percent. Comparing the Delta-p values in Models W and B reveals that earning a license, associates, or bachelors degree is two to three times more important for Black borrowers than for Whites.

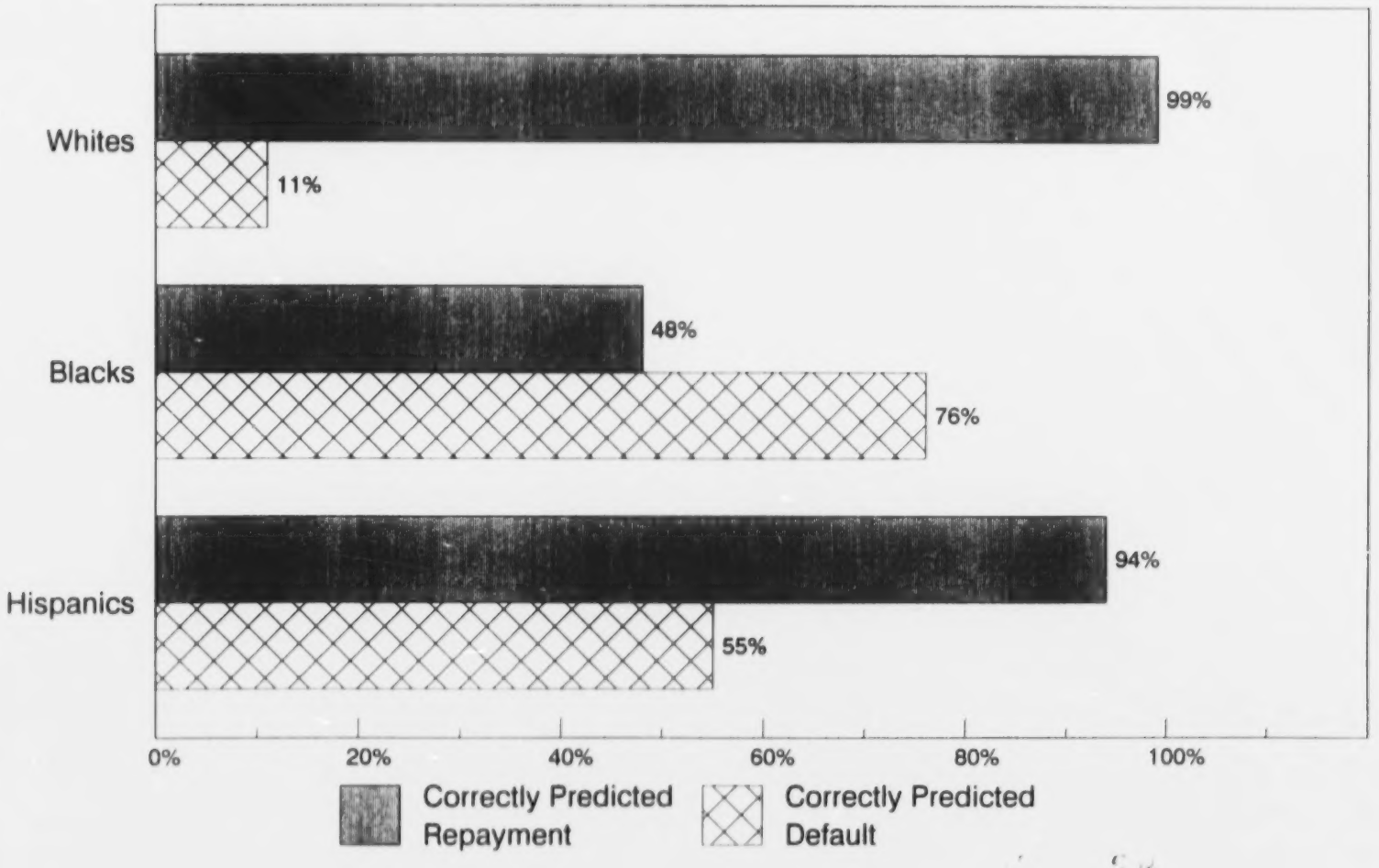
In Model B, married borrowers exhibit a default rate that is almost 14 percent **lower** than those who are single -- an effect that is three times the size as for Whites. Among African American borrowers each dependent child **increases** the probability of default by about 5 percent. Again this is substantially greater than the 3.6 percent increase for Model W borrowers with dependent children.

The average default rate for the Model B population is 55.7 percent. Model B correctly predicts 63.7 percent of overall borrower behavior, but (unlike Model W) this model correctly predicts a greater amount of default (75.9%) and only 48.1 percent of repayment. (See Chart 6.)

Turning to **Model H** in Table 6, we see that the average default rate is 19.1 percent. Only four variables attain statistical significance, and they each serve to lower the probability of default by similar amounts. Graduating with a high school diploma and having a parent who did also, being female, and

Chart 6

Percent of Cases Correctly Predicted by the Three Logistic Regression Models



being married all reduce default by amounts ranging from 13.2 to 15.3 percent. This model is responsible for 86.3 percent of the cases correctly predicted (93.9% of repayers and 54.8% of defaulters). (See Chart 6.)

For all three populations, being female and being married substantially lowers the probability of default, especially among Black and Hispanic borrowers. While Models W and H correctly predict over 90 percent of repayment behavior, Model B is the best predictor of loan default itself. (See Chart 6.)

CONCLUSION, DISCUSSION, IMPLICATIONS

Most Prominent Findings

We find that student loan repayment and default behavior can be substantially predicted by the pre-college, college, and post-college characteristics of individual borrowers. While there is wide variation in default rates among racial and ethnic groups, the factors that contribute to loan default among Whites, African Americans, and Hispanics differ more in degree than in kind. Moreover, the type of institution attended, the grades earned, and the choice of major appear to be less important than completing a degree, being married, and not having dependent children. These findings have rich implications for national policy makers, campus managers, researchers, parents, and students alike.

We find only modest evidence that type of institution attended has an impact on student loan default. Rather, the effects of institution type appear to be out-weighed by the level of degree earned by the borrower. Examining the Model One dataset, we find that default rates range from greater than 29 percent at proprietary schools to below 14 percent at most doctoral granting universities and specialized professional schools (like business, engineering, theology). However, once the individual borrower characteristics are entered into a logistic regression model, these significant differences across institutions are greatly reduced for four-year institutions and disappear completely for two-year schools. Indeed, the impact of institution type appears important only for White borrowers, but not for Blacks or Hispanics. These results appear consistent with studies by Hearn (1984, 1991, 1992) that found significant linkages between the background characteristics of students and their college destinations. Overall, the evidence suggests t[illegible]hese default rate differences are based more substantially upon the nature of the borrowers and their achievements, than it is upon the types of institutions they attend.

We draw our conclusions from analyses of the datasets that we created from NPSAS-87. Loan repayment and default behavior appears to be less a function of the institutions themselves and more a

function of the nature of the students, their performance in college, their choice of major, their degrees earned, and their subsequent post-college achievement and behavior. In all three populations (White, Black, and Hispanic), we find that two measures (sex and marital status) exert consistent influences on default behavior, but being female and being married lowers the default rate even more dramatically for Black and Hispanic borrowers than it does for Whites. Similarly, while having a parent who attended college, completing a degree, being married, and not having dependent children are all factors that lower the likelihood of default and increase the likelihood of repayment, these effects have the strongest impact on the population with the highest default rates -- African American borrowers. Thus, the magnitude of the effect (reflected in Delta-p values) is generally larger for the Black and Hispanic populations than for Whites in this study. For example, the benefit to a Black borrower of earning a degree is two or three times greater than the benefit to a white borrower. This suggests the power of public and personal investment in the education of minority groups and is consistent with the research literature on people of color.

We were interested in conducting this research because of the strong connection between race and loan default in the earlier studies. Blacks and Hispanics in this study, compared to Whites, have lower levels of degree attainment, lower levels of academic achievement, almost twice the number of dependent children, and almost twice the rate of separation and divorce (See Appendixes 2 - 4). We find that having dependent children (in Models One, W, & B) and being separated or divorced (in Models One & W) **increase** the probability of default enormously. Conversely, being female and married (all models), and completing a degree program (Models One, W & B) significantly **decrease** the probability of default. Thus, the regression results indicate not only that these factors play strong roles in loan repayment behavior, but also that they outweigh the effects of most other variables, including parent education and income, type of institution attended, transfer status, financial aid mix, and borrower's 1986 income. Extending the regression results to all five racial/ethnic groups, Table 7 shows that three variables, degree completion, marital status and dependent children, are the great equalizers. Borrowers in similar circumstances, especially with respect to earned degrees, marital status, and family size, exhibit generally similar levels of income and loan default, regardless of race or ethnic group.

Similarities and Differences with Other Studies

We began this study by merging four theoretical perspectives and found support for the relevance of all four, although in different models. **Human capital theory and the value of public subsidy** is demonstrated by the significant linkage between earned degrees and lower default rates (in Models One, W & B). The **ability to pay model** is supported by the role of family support (in Models One & W) and by marital status (all models) and dependent children (all except Model H). The relevance of **student-**

Table 7

IMPACT OF DEGREE COMPLETION, MARITAL STATUS AND FAMILY SIZE ON INCOME AND LOAN DEFAULT FOR EACH RACIAL/ETHNIC POPULATION

Borrower Characteristics	1986 Taxable Income	Default Rate
Married with Bachelors Degree or Higher, and No Dependents:		
Asian Americans	$44,067	08%
African Americans	$45,625	10%
Native Americans	$44,311	07%
Hispanics	$43,911	08%
Whites	$40,985	07%
Unmarried (includes Single/Sep./Wid./Div.) with No College Degree and One or More Dependents:		
Asian Americans	$22,350	37%
African Americans	$22,350	43%
Native Americans	$22,325	37%
Hispanics	$24,875	38%
Whites	$21,604	35%

institution fit perspectives is reflected by the importance of college grades and college major, especially among White borrowers. The results reported by Volkwein and Szelest (1995) even reflect a linkage to the **organizational literature,** although organizational wealth and student body diversity have opposite effects on default and are generalizable only to non-proprietary institutions.

The empirical literature on this topic contains only three previous published investigations that compare the characteristics of defaulters with the characteristics of institutions they attend, and they produced results that are in some important respects consistent with our own. Wilms, Moore and Bolus (1987) studied a population of California proprietary and two-year college borrowers in selected fields of study and found that race, high school completion, annual income, and graduating with a degree or credential were significantly related to differences in default rates. The two institution types contributed little to their model once student characteristics were taken into account. Knapp and Seaks (1992) examined a population of borrowers at 26 Pennsylvania two-year and four-year campuses and also found that a group of institutional variables (including size, cost, highest degree, and institution type) had no impact on default rates compared to important borrower characteristics (such as race, parent income, and graduating with a degree). Volkwein and Szelest (1995) analyzed a national sample of 2600 borrowers and concluded that an array of institutional characteristics (reflecting mission, size, wealth, complexity, and selectivity) exhibited minor influences on default compared to borrower characteristics like college GPA, major, degree earned, marital status, and dependent children. Our larger national database, containing more than 6000 borrowers and a thousand institutions, strengthens their conclusions considerably. Like the other studies, we find only scant support for the hypothesis that institutional characteristics have a direct impact on student loan default among ethnic minorities.

We find that College GPA is a strong predictor of loan default and repayment behavior among Whites but not minorities. Among minorities, especially Blacks, degree completion is more important than grades earned. Most investigations of loan default have not included measures of academic ability or performance. The earlier single-institution studies by Dyl and McGann (1977), Stockham and Hesseldenz (1979), Myers and Siera (1980), and Gray (1985) concluded that college GPA is positively associated with repayment. More recently, Flint (1994) analyzed a population of over 1000 borrowers at a two-year institution in Illinois and also found, as we did in Models One and W, that college GPA is an especially powerful predictor of loan repayment. Though less important for minorities, we suspect that academic ability and performance in high school and college are early indicators of the characteristics that eventually lead to loan repayment and default behavior.

Low academic performance may have several detrimental influences. First, it may encourage (or even require) students to withdraw before degree completion. Second, poor performance may leave

students dissatisfied with their college experience. Third, a low GPA makes it difficult for students to continue their education and earn additional degrees. Each of these possibilities will lower the likelihood of repayment. We introduced college GPA as one indicator of student-institution fit, but it may serve also as a proxy for student ability, conscientiousness, and motivation -- traits associated with success in later life, as well as in college.

We also find that a college major in a scientific, engineering, or agricultural discipline lowers the default probability by over four percent among White borrowers but not among Blacks or Hispanics. While this result may be due substantially to differences in sample size among the three populations, degree completion among minorities appears to be more important than grades earned or major field of study, especially among Blacks. Among White borrowers, earning good grades and majoring in a scientific or technological field generally lowers the probability of default substantially, although completing a degree is even more influential than these in lowering default among whites and minorities alike. These findings are consistent with the economics literature indicating that the American labor market is very degree sensitive.

Several measures did not prove to be particularly significant, including the amount and types of aid, gross income, and parents income. Other variables, like college major and GPA and family support, are significant for Whites but not for Blacks and Hispanics. One explanation for these results may relate to the smaller sample sizes of Blacks and Hispanics, which are a fraction of the number of Whites in the study. As shown by Pedhazur (1982), the larger the sample size, the higher the number of potentially significant predictors.

We expected, but did not find, that the amount of loan indebtedness would have a negative influence on repayment, at least by minorities if not whites. This is one of many studies showing that the amount borrowed has either no effect or a beneficial effect on student loan repayment and default. Sanford (1980), Myers and Siera (1980), Miller (1982), Gray (1985), Flint (1994), and Volkwein and Szelest (1995) have all found that higher student loan indebtedness is not detrimental to repayment behavior. The explanation may rest in economic and human capital theory. Higher levels of indebtedness result from additional years of schooling and degree attainment. Those with higher levels of training and degree credentials, regardless of race, are able to compete more successfully in the labor market for jobs and income. It is quite clear from the finance literature that additional years of schooling and additional degrees yield greater rates of return (Leslie and Brinkman, 1988). Thus, even though student borrowers with advanced degrees emerge from college with higher levels of debt, their investment generally enables them to enter careers that yield higher levels of income and make loan repayment more likely.

Recent research by Duncan (1994) found that family income differences eliminate most of the gap in years of schooling between blacks and whites. Thus, we anticipated that parent income and family support would be influential in Models B and H, but they are not. While higher levels of parent **education** are associated with lower default rates for all three populations, parent **income** and family support while in college are **not** significant predictors of default behavior among African American nor Hispanic borrowers. Parent education may be a more powerful variable than parent income because it reflects certain values that transcend income (Coleman, 1988).

An ability to pay perspective also suggests that **personal** income levels would be highly significant in our models for minority groups, as well as for Whites, but they are not. We expected that 1986 income would be an influential variable, but we were surprised by its relative weakness. Since the database includes borrowers who left college beginning in the 1970s up through the mid-1980s, and since many of these loan defaults occurred during the 1970s, we suspect that 1986 income has a low relationship to the income at the time of default for many borrowers in the sample.

Our suspicion is confirmed by one of the more interesting and perhaps hopeful findings in this study: **two out of three defaulters had resumed payment at the time of the 1987 survey, and almost one-third had completely repaid.** This indicates that many earlier defaulters, especially those in the 1970s, had improved their situations and by 1987 were able to repay. Repayment after default strikes us as a phenomen for fruitful additional study, especially since we observed the same racial/ethnic differences in loan repayment after default that we observed in the original default behavior. Asians are most likely to resume payment after default, followed by Whites. Blacks and Native Americans are least likely, followed by Hispanics.

We believe that at least some of the non-significant differences among Models W, B, and H are statistical artifacts created by minority borrowers having both lower average parental incomes and smaller standard deviations in income compared to Whites. Nearly three-fourths of the Black and Hispanic borrowers in this study come from families at the two lowest levels of income, compared to less than 50 percent of white borrowers. These significant differences suppress the mediating influence of parental income in Models B and H, especially with the smaller sample sizes. Another problem with parent income is that it may not be reported accurately by students. For example, there is some evidence that low income Hispanics and other disadvantaged minorities are least likely to report parent income accurately (Olivas, 1986).

The literature also suggests that parent income, especially for minorities, does not sufficiently capture significant differences in family wealth and access to beneficial social and occupational networks.

For example, Blau and Graham (1990) found that young Black families hold only about 18 percent of the wealth of young White families, even controlling for current income and other demographic variables. In addition, Coleman (1988) indicates that occupational and economic attainment is also a function of the cultural and social capital of the family. A strong family support system provides the student with an advantage in educational and occupational attainment, and Black, Hispanic, and American Indian families may lack these connections to a greater extent than Whites and Asians. The research evidence suggests that prejudice and segregation and separatism, both inside and outside minority group communities, acts to reduce the cultural and information networks that provide access to occupational opportunities (Coleman, 1988). In his longitudinal panel study, Duncan (1994) found that both neighborhood and family characteristics are significant contributors to differences in years of schooling among racial groups. With networks that are less rich and diverse, African American and Hispanic (and for that matter Native American) borrowers may have constricted educational and career opportunities, and therefore, a higher propensity to default, regardless of ability and parent income. Thus, colleges and universities that serve these students should consider the need for additional career counseling and placement services to fill gaps in their social and occupational networks, as well as to lower their default rates.

Implications for Policy and Practice

The practical and policy implications of our study are complex because they reveal paradoxical clashes among the values, goals, and policies of public subsidy, educational opportunity, cost effective investment, and institutional accountability. On the one hand, our models provide ample evidence that important aspects of the current system are functioning as they were designed. Students from low income families are able to borrow, and if they earn good grades and stay in school to degree completion, the models suggest that they are likely to repay their loans and avoid default. Thus, the cycle of poverty is broken. On the other hand, if students do not perform well academically, and worse, if they do not complete their degree programs, the return on their investment drops and they are less likely to be able to repay their loans. In fact, the additional indebtedness may be a heavy burden. The federal government has given the campus a keen interest in how this all turns out for the student because institutions are deemed responsible for their former students who default.

Campus enrollment management and financial aid programs appear to be in a struggle for the right balance between survival and accountability. Here's the enrollment management dilemma: On the one hand, campuses need student enrollments (and the revenue that comes with them) in a competitive system where about 3000 accredited institutions of higher education (and thousands more proprietary schools) admit over 80 percent of their applicants (Volkwein, 1994). Thus, most students have a choice of

institutions to attend because most, though not all, campuses have an economic self-interest in admitting a huge proportion of their applicants as a matter of simple survival.

On the other hand, many applicants have poor records of prior achievement and are not good risks for acceptable academic performance and graduation. Poor academic performance is the number one reason for student departure, and departure before degree completion is the number one reason for loan default. Depending on the year, the correlation coefficients between the percent of freshman applicants admitted and the retention and graduation rates are in the -.61 to -.75 range (the lower the proportion admitted, the higher the graduation rate). Retention and graduation correlations with average SAT scores are even higher, in the .71 to .85 range (Volkwein, 1994). Maintaining selective admissions standards, therefore, is a viable enrollment management and loan default reduction strategy since it produces higher persistence and graduation rates, at least at most institutions. Moreover, faculty have concerns about academic standards that are usually reflected in pressures for selective admissions. Colleges and universities thus experience Janusian pressures both to admit more students and to become more selective.

The federal government is a paradoxical partner in this enterprise because it not only allows but encourages institutions, in the name of educational opportunity and human capital investment, to give loans to students who are poor risks (both educationally and economically), while simultaneously putting accountability pressure on the very institutions that serve these risky borrowers. Concerns about high levels of default have led the federal government to include default rates as SPRE "triggers". Accordingly, institutions with default rates above a benchmark are targeted for elaborate external audits which can result in excluding the institution from qualifying for student financial aid. This national policy assumes that default rates are under institutional control, but our results show that personal factors substantially outweigh institutional ones. Thus, financial aid officers and enrollment managers find themselves caught in a national clash of values between public subsidy versus accountability.

The current federal obsession with graduation rates and student loan defaults as performance measures seems rather crude, but it may work if it encourages campuses to improve academically and to become more thoughtful and selective in admissions. Institutions obviously have more influence upon the academic achievement and persistence of their borrowers than they do upon their race or sex or family size or marriages. Our models suggest that campuses can best assist their student borrowers by creating a climate that promotes good academic performance, encourages study in both pure and applied scientific disciplines, and ensures student degree completion. To the extent that colleges and universities can foster behavior that leads to student learning and skill attainment (reflected in good grades), and to student degree completion, they are likely to observe higher repayment and lower default rates among their former students. This may require campuses to strengthen academic degree programs and support services,

including child care, that are responsive to the labor market and that give students needed skills (Volkwein & Szelest, 1995).

While admissions selectivity and academic support services may be improvements leading to higher graduation and loan repayment rates, the frustrating fact is that a great deal of loan default behavior results from factors that are clearly beyond campus control, like broken marriages and dependent children. Thus, another public paradox: institutions are held accountable for loan default behavior, some proportion of which is a consequence of both educational openness and government encouragement, and a large proportion of which is related to factors for which individual borrowers rather than institutions should be held accountable, especially when it occurs years after students have left the campus.

The banking industry protects investors' money by using criteria to screen out risky borrowers, but the Guaranteed Student Loan program does the opposite by using tax revenue largely to serve risky borrowers. This is a delicate problem because if hospital trauma centers were penalized for having higher than average death rates, they would likely reduce or eliminate the admission of trauma-injury patients (Volkwein and Szelest, 1995). Since it is illegal to deny federal loans (or to vary the amount) to students based on factors like sex or race or academic ability, the admissions decision (rather than the student loan decision) is likely to be the point at which institutions attempt to predict and control graduation rates and loan repayment prospects. The danger is that campuses will begin to search for overly simplistic admissions indicators, like race and poverty, that may predict and screen out likely dropouts and loan defaulters. Such understandable campus action would diminish educational opportunity for many deserving students and would contradict the central purpose of the student loan program, which is to increase access to higher education, not deny it. Thus, one government policy, aimed at holding campuses responsible for loan default, may have the unintended consequence of undermining another government policy, aimed at interrupting the cycle of poverty in America.

Next Steps

There are several areas deserving additional examination. First, we found that only one-third of defaulters in NPSAS-87 had not repaid their loans or resumed payment. This finding deserves confirmation on a current population . Public and lawmaker concern may be alleviated if the "real problem" is only one-third the amount advertised; and we should learn more about defaultees who subsequently repay. Second, the lower default rates for females deserves further examination, and suggests the existence of within-race differences in patterns of loan repayment. Third, research is needed on the dynamics of marital status and family size as influences on loan default. Our measures of marital status and family size are at the time of first loan repayment or default. We do not know the marital status

and family size at the time of enrollment, but we do know that these borrowers were enrolled full-time in order to be eligible for their federal loans. We assume that their status as full-time students means that most were unmarried without dependent children, but we do not know exactly, and this is important information in view of the heavy influence of these factors. Fourth, the roles of academic talent and student effort as a predictors of repayment, need to be more thoroughly investigated. We, along with parents and students, should not ignore the likelihood that loan repayment is a proxy for post-college financial and social success, a significant portion of which results from the personal investments --energy, discipline, work habits-- that students make during the college years. Fifth, the only study with higher PCPs than this one included personality measures (Stockham and Hesseldenz, 1979). Most models have proven better at predicting repayers than defaulters, and we need to expand the types of measures under consideration. Sixth, federal legislation tends to treat institutions alike, but the more recent atmosphere in Washington, D.C. and several state capitals reflects a growing reaction against costly and unproductive "one shoe fits all" regulation. Future policy studies should investigate the likelihood of significantly different patterns and causes of default among borrowers from various institution types. However, we also suggest that researchers and policy makers look beyond the institutions attended by borrowers, and focus instead on the root causes of loan default behavior and on the need to craft policies that take variable causes into account.

Appendix 1
Univariate Statistics for Model One

	Mean	Standard Deviation
Institution Type		
2-Yr College	.14	.34
4-Yr College	.28	.45
Doctoral Univ	.38	.48
Race		
White Caucasian	.82	.38
Native American	.01	.09
Asian American	.01	.12
African American	.12	.33
Hispanic	.03	.16
Female Gender	.50	.50
Parent Education		
Less than High School	.01	.12
High School Graduate	.28	.45
Less than 2 yrs	.14	.35
2 yrs College	.11	.31
Completed College	.18	.39
Masters or Ph.D	.15	.35
Parent Income		
$10,999 or less	.45	.50
$11,000-$16,999	.08	.28
$17,000-$22,999	.09	.29
$23,000-$29,999	.11	.32
$30,000-$49,999	.17	.38
$50,000 or more	.09	.29
High School Diploma	.93	.26

	Mean	Standard Deviation
Financial Aid		
Grants/Scholarhips	.25	.43
Work Study	.12	.32
Outside Employment	.43	.50
Family Support	.33	.47
Transfer Status	.30	.46
Science/Technol Major	.36	.48
Grade Point Average (4.0 Scale)	2.71	.64
Amount Borrowed	1548.63	1648.59
Highest Degree Earned		
No Degree	.37	.48
License/Certificate	.09	.29
Associates	.07	.25
Bachelors	.36	.48
Masters or Ph.D.	.11	.31
Number of Dependent Children	.54	1.11
Marital Status		
Single	.70	.46
Married	.22	.42
Separated/Divorced/Wid	.06	.23
1986 Gross Income	31.39	80.38

Appendix 2
Univariate Statistics for Model W

	Mean	Standard Deviation
Institution Type		
2-Yr College	.13	.34
4-Yr College	.29	.45
Doctoral Univ	.40	.49
Female Gender	.49	.50
Parent Education		
Less than High School	.01	.11
High School Graduate	.28	.45
Less than 2 yrs	.15	.36
2 yrs College	.11	.32
Completed College	.20	.40
Masters or Ph.D	.16	.37
Parent Income		
$10,999 or less	.41	.49
$11,000-$16,999	.08	.28
$17,000-$22,999	.09	.29
$23,000-$29,999	.13	.33
$30,000-$49,999	.19	.39
$50,000 or more	.10	.30
High School Diploma	.94	.24

	Mean	Standard Deviation
Financial Aid		
Grants/Scholarhips	.24	.43
Work Study	.12	.32
Outside Employment	.47	.50
Family Support	.36	.48
Transfer Status	.32	.46
Science/Technol Major	.37	.48
Grade Point Average (4.0 Scale)	2.76	.62
Amount Borrowed	1651.75	1686.17
Highest Degree Earned		
No Degree	.34	.47
License/Certificate	.09	.28
Associates	.07	.26
Bachelors	.39	.49
Masters or Ph.D.	.12	.33
Number of Dependent Children	.48	1.03
Marital Status		
Single	.70	.46
Married	.23	.42
Separated/Divorced/Wid	.05	.22
1986 Gross Income	29.81	63.47

Appendix 3
Univariate Statistics for Model B

	Mean	Standard Deviation
Institution Type		
2-Yr College	.15	.36
4-Yr College	.26	.44
Doctoral Univ	.25	.43
Female Gender	.61	.49
Parent Education		
Less than High School	.02	.15
High School Graduate	.32	.47
Less than 2 yrs	.11	.32
2 yrs College	.11	.31
Completed College	.08	.27
Masters or Ph.D	.06	.24
Parent Income		
$10,999 or less	.65	.48
$11,000-$16,999	.09	.29
$17,000-$22,999	.09	.28
$23,000-$29,999	.07	.25
$30,000-$49,999	.07	.25
$50,000 or more	.04	.19
High School Diploma	.86	.35
Financial Aid		
Grants/Scholarhips	.27	.45
Work Study	.11	.32
Outside Employment	.26	.44
Family Support	.19	.39
Transfer Status	.19	.40
Science/Technol Major	.34	.47
Grade Point Average (4.0 Scale)	2.39	.65
Amount Borrowed	973.52	1311.40
Highest Degree Earned		
No Degree	.57	.49
License/Certificate	.14	.35
Associates	.04	.20
Bachelors	.20	.40
Masters or Ph.D.	.04	.20
Number of Dependent Children	.82	1.27
Marital Status		
Single	.72	.45
Married	.15	.36
Separated/Divorced/Wid	.09	.29
1986 Gross Income	24.57	96.14

Appendix 4
Univariate Statistics for Model H

	Mean	Standard Deviation
Institution Type		
2-Yr College	.16	.37
4-Yr College	.24	.43
Doctoral Univ	.35	.48
Female Gender	.51	.50
Parent Education		
Less than High School	.02	.16
High School Graduate	.20	.40
Less than 2 yrs	.12	.32
2 yrs College	.08	.27
Completed College	.12	.33
Masters or Ph.D	.11	.32
Parent Income		
$10,999 or less	.62	.49
$11,000-$16,999	.10	.30
$17,000-$22,999	.07	.26
$23,000-$29,999	.06	.23
$30,000-$49,999	.10	.31
$50,000 or more	.05	.22
High School Diploma	.85	.36

	Mean	Standard Deviation
Financial Aid		
Grants/Scholarhips	.30	.46
Work Study	.17	.37
Outside Employment	.30	.46
Family Support	.20	.40
Transfer Status	.23	.42
Science/Technol Major	.32	.47
Grade Point Average (4.0 Scale)	2.60	.67
Amount Borrowed	1147.04	1234.42
Highest Degree Earned		
No Degree	.41	.49
License/Certificate	.12	.33
Associates	.07	.26
Bachelors	.29	.46
Masters or Ph.D.	.10	.31
Number of Dependent Children	.85	1.46
Marital Status		
Single	.65	.48
Married	.25	.43
Separated/Divorced/Wid	.09	.29
1986 Gross Income	27.74	85.13

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